

IN THE CLAIMS:

Please cancel claims 30-32, without prejudice or disclaimer.

Please replace claims 1, 2, 6, 8, 10, 12, 17, 19, 20, 23, 27 and 33 with the following:

1.(Amended) A cesium vapor emitter, comprising:

a housing having at least one chamber therein and at least one channel, wherein the channel has a size wide enough to introduce a desired amount of cesium vapor;

a cesium reservoir placed in the chamber, wherein the cesium reservoir is filled with a cesium slurry and a plug located between the cesium slurry and the channel, thereby emitting the cesium vapor from the cesium slurry through the channel; and

a stopper securing the cesium reservoir in the chamber, so that the cesium vapor is emitted through the channel.

2.(Amended) The cesium vapor emitter according to claim 1, wherein the cesium slurry includes Cemite™.

6.(Amended) The cesium vapor emitter according to claim 1, wherein the cesium slurry is a mixture of cesium-mordenite powder 50%-liquid cesium 50% by weight.

8.(Amended) The cesium vapor emitter according to claim 1, wherein the cesium reservoir is heated up to a range of about 0 to 400°C.

10.(Amended) A negative ion sputter source, comprising:

an electrode receiving a certain electrical potential;

a sputter target electrically coupled to the electrode, having a more negative electrical potential than the electrode, and providing a plurality of source negative ions;

and

a cesium vapor emitter located close enough to provide a plurality of cesium vapor onto a reacting surface of the sputter target, wherein the cesium vapor emitter includes a housing having at least one chamber therein and at least one channel, wherein the channel has a size wide enough to introduce a desired amount of the cesium vapor and is located in close proximity to the sputter target and a cesium reservoir placed in the chamber, wherein the cesium reservoir is filled with a cesium slurry and a plug located between the cesium slurry and the channel, and a stopper securing the cesium reservoir in the chamber, so that the cesium vapor is emitted through the channel.

12.(Amended) The cesium ion source according to claim 11, wherein the cesium slurry includes Cemite™.

17.(Amended) The cesium vapor emitter according to claim 10, wherein the cesium reservoir is heated up to a range of about 0 to 400°C.

19.(Amended) A method of fabricating a cesium vapor emitter, comprising:

- preparing a stabilized cesium slurry;
- introducing the cesium slurry into a cesium reservoir; and
- sealing the cesium reservoir with a cesium pellet plug by using vacuum pressing.

20.(Amended) The method according to claim 19, wherein the preparing a stabilized cesium slurry includes:

- mixing sodium-mordenite and cesium-chloride;
 - heating the mixed sodium-mordenite and cesium-chloride;
 - filtering the heated mixture through a vacuum frit;
 - drying a residual powder in a hot vacuum oven;
 - heating the dried powder high enough to stabilize a cesium-mordenite powder;
- and
- mixing the cesium-mordenite powder with liquid cesium under an anti-oxidant environment to obtain the cesium slurry.

23.(Amended) The method according to claim 20, wherein the cesium-mordenite powder and the liquid cesium is mixed with the same amount by weight.

27. (Twice Amended) A method of fabricating a stabilized cesium pellet, comprising:

- mixing sodium-mordenite and cesium-chloride;
- heating the mixed sodium-mordenite and cesium-chloride;

filtering the heated mixture through a vacuum frit;
drying a residual powder in a hot vacuum oven;
heating the dried powder high enough to stabilize a cesium-mordenite powder;
grinding the stabilized cesium-mordenite powder;
molding by press the cesium-mordenite powder to make a pellet; and
sintering the press molded pellet.

33. (Twice Amended) The press molded pellet according to claim 27, wherein the press molded cesium-mordenite is sintered at about 1200-1500°C.

Conclusion

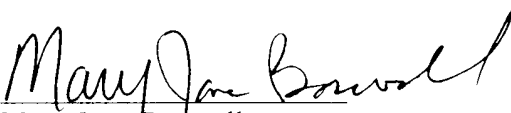
Prior to an examination of the application on the merits, Applicants respectfully request entry of this Supplemental Preliminary Amendment and Substitute Specification. Applicants respectfully submit that the changes to the claims do not add new matter, have not been made for any reason of patentability, and do not narrow the scope of the claims. Thus, Applicants do not intend to relinquish any subject matter by this amendment.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attachment is captioned "**VERSION WITH MARKINGS TO SHOW CHANGES MADE.**"

If there are any other fees due in connection with the filing of this paper, please charge the fees to our Deposit Account No. 50-0310. If a fee is required for an extension of time under 37 C.F.R. § 1.136 not accounted for above, such an extension is requested and the fee should also be charged to our Deposit Account.

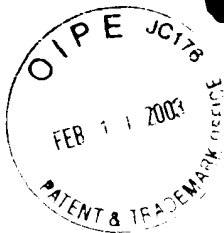
Respectfully Submitted,

By:


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VERSION WITH MARKINGS TO SHOW CHANGES MADE

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Claim 1 has been amended as follows:

1.(Amended) A cesium vapor emitter, comprising:

a housing having at least one chamber therein and at least one channel, wherein the channel has a size wide enough to introduce a desired amount of cesium vapor;

a cesium reservoir placed in the chamber, wherein the cesium reservoir is filled with a cesium ~~[pellet]~~ slurry and a plug located between the cesium ~~[pellet]~~ slurry and the channel, thereby emitting the cesium vapor from the cesium ~~[pellet]~~ slurry through the channel; and

a stopper securing the cesium reservoir in the chamber, so that the cesium vapor is emitted through the channel.

Claim 2 has been amended as follows:

2.(Amended) The cesium vapor emitter according to claim 1, wherein the cesium ~~[pellet]~~ slurry includes ~~[cesium slurry]~~ Cemite™.

Claim 6 has been amended as follows:

6.(Amended) The cesium vapor emitter according to claim 1, wherein the cesium ~~[pellet]~~ slurry is a mixture of cesium-mordenite powder 50%-liquid cesium 50% by weight.

Claim 8 has been amended as follows:

8.(Amended) The cesium vapor emitter according to claim 1, wherein the cesium reservoir is heated up to a range of about ~~{150 to 200°C}~~ 0 to 400°C.

Claim 10 has been amended as follows:

10.(Amended) A negative ion sputter source, comprising:

an electrode receiving ~~an~~ a certain electrical potential;

a sputter target electrically coupled to the electrode, having a more negative electrical potential ~~[higher]~~ than the electrode, and providing a plurality of source negative ions; and

a cesium vapor emitter located close enough to provide a plurality of cesium vapor onto a reacting surface of the sputter target, wherein the cesium vapor emitter includes a housing having at least one chamber therein and at least one channel, wherein the channel has a size wide enough to introduce a desired amount of the cesium vapor and is located in close proximity to the sputter target and a cesium reservoir placed in the chamber, wherein the cesium reservoir is filled with a cesium ~~[pellet]~~ slurry and a plug located between the cesium ~~[pellet]~~ slurry and the channel, and a stopper securing the cesium reservoir in the chamber, so that the cesium vapor is emitted through the channel.

Claim 12 has been amended as follows:

12.(Amended) The cesium ion source according to claim 11, wherein the cesium ~~{pellet}~~ slurry includes ~~{a cesium slurry}~~ Cemite™.

Claim 17 has been amended as follows:

17.(Amended) The cesium vapor emitter according to claim 10, wherein the cesium reservoir is heated up to a range of about ~~{150 to 250°C}~~ 0 to 400°C.

Claim 19 has been amended as follows:

19.(Amended) A method of fabricating a cesium vapor emitter, comprising:
preparing a stabilized cesium ~~{pellet}~~ slurry;
introducing the cesium ~~{pellet}~~ slurry into a cesium reservoir; and
sealing the cesium reservoir with a cesium pellet plug by using vacuum pressing.

Claim 20 has been amended as follows:

20.(Amended) The method according to claim 19, wherein the preparing a stabilized cesium ~~{pellet}~~ slurry includes:
mixing sodium-mordenite and cesium-chloride;
heating the mixed sodium-mordenite and cesium-chloride;
filtering the heated mixture through a vacuum frit;
drying a residual powder in a hot vacuum oven;

heating the dried powder high enough to stabilize a cesium-mordenite powder;
and
mixing the cesium-mordenite powder with liquid cesium under an anti-oxidant environment to obtain the cesium slurry.

Claim 23 has been amended as follows:

23.(Amended) The method according to claim 20, wherein the cesium-mordenite ~~{power}~~ powder and the liquid cesium is mixed with the same amount by weight.

Claim 27 has been amended as follows:

27. (Twice Amended) A method of fabricating a stabilized cesium pellet, comprising:
mixing sodium-mordenite and cesium-chloride;
heating the mixed sodium-mordenite and cesium-chloride;
filtering the heated mixture through a vacuum frit;
drying a residual powder in a hot vacuum oven;
heating the dried powder high enough to stabilize a cesium-mordenite powder;
~~{mixing the cesium-mordenite powder with liquid cesium under an anti-oxidant environment to form a mixture; and}~~

grinding the stabilized cesium-mordenite powder;

molding by press the cesium-mordenite powder to make a pellet; and

sintering [~~the mixture of cesium-mordenite powder and liquid cesium~~] the press
molded pellet.

Claim 33 has been amended as follows:

33. (Twice Amended) The [~~cesium slurry~~] press molded pellet according to claim [31]
27, wherein the press molded cesium-mordenite is sintered at about 1200-1500°C.